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ABSTRACT

This decision tool presents a progression of data collection and decision-making strategies that can increase the effectiveness of distance-based or distributed learning instruction. A narrative and flow chart cover the following steps: (1) basic assumptions, including purpose of instruction, market scan, and financial resources; (2) needs assessment, including learner profile and technology infrastructure; (3) content definition/instructional analysis, including curriculum model, instructional goals, instructional objectives, and assessments; (4) instructional strategy, including course map/sequencing of instruction, activities, and storyboard; (5) course development or acquisition, including scope and distribution, product evaluation, presentation, course management, and legal issues; (6) evaluation, including formative and summative evaluation; and (7) instructional delivery, including administration, instructor training, delivery support, system maintenance, and content/technical support. (MES)

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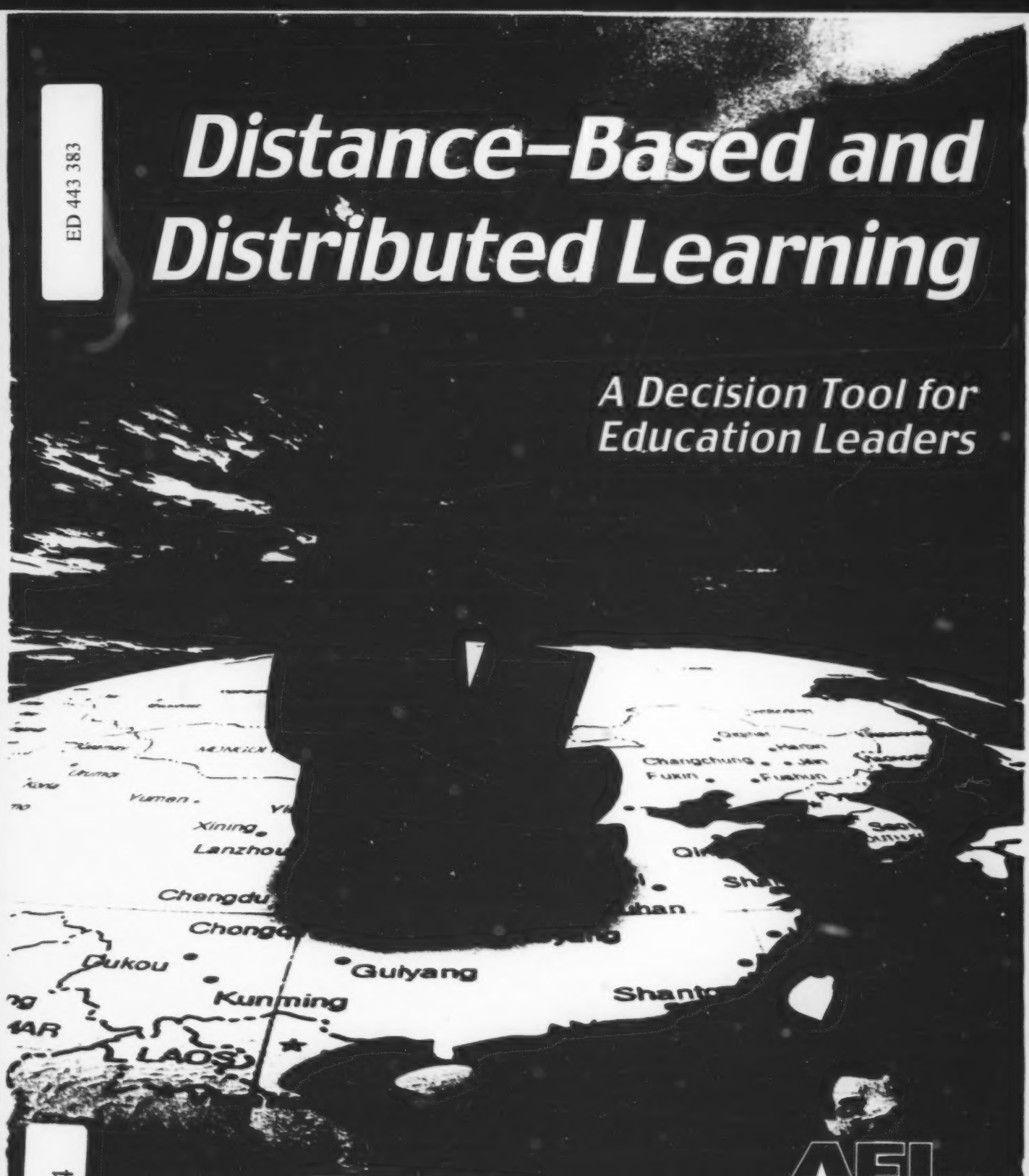

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Distance-Based and Distributed Learning
A Decision Tool for Education Leaders

Distance Learning: Instruction that takes place with the instructor and learners in different physical locations. Time locations may be the same, synchronous, or different, asynchronous, according to course scheduling and delivery medium. Distance learning may employ stand-alone print or electronic media, but is most commonly thought of as being delivered via telecommunications, especially television or the Internet.

Distributed Learning: Instruction that mixes delivery modes and media; it may include face-to-face, print, and digital presentations.

Delivery Media: Formats can be broadly divided into print, audio, video, and digital data, but there is some overlap. Web-based presentation is popular, but other useful formats such as phone, fax, and recorded audio and video should not be overlooked.

Introduction

Distance learning has matured in step with technology, progressing from print-based mail correspondence courses to radio and television broadcasts to interactive multimedia presentations delivered to networked microcomputers via Internet and satellite-based telecommunications. The popularity of distance-based instruction has brought it into elementary and secondary schools, colleges and universities, continuing education programs, business and industry, and private homes. Distance learning makes possible training or instruction to individuals with special needs and interests and to those whose family or work commitments prevent them from attending traditional, classroom-based instruction. Many industries find distance-based training more cost-effective than sending employees off-site.

While the mode of delivery has changed, the development and presentation of instruction should continue to be based on sound principles. Unfortunately, the rapid growth of information technologies and the increasing demand for distance-based instruction have led to a proliferation of courses that incorporate the latest technology but fall short in desired instructional outcomes. It is tempting to become caught up in the design and layout of computer screens, Web pages, and graphics, but there are many important decisions to make before creating the content.

This tool presents a sound progression of data collection and decision making strategies that can increase the effectiveness of distance-based or distributed learning instruction. Follow the numbered steps and develop answers to the questions. Some questions include sample responses, but specific answers depend on the unique needs and situations of the institution and the learners.

Basic Assumptions

First, establish the basic assumptions.

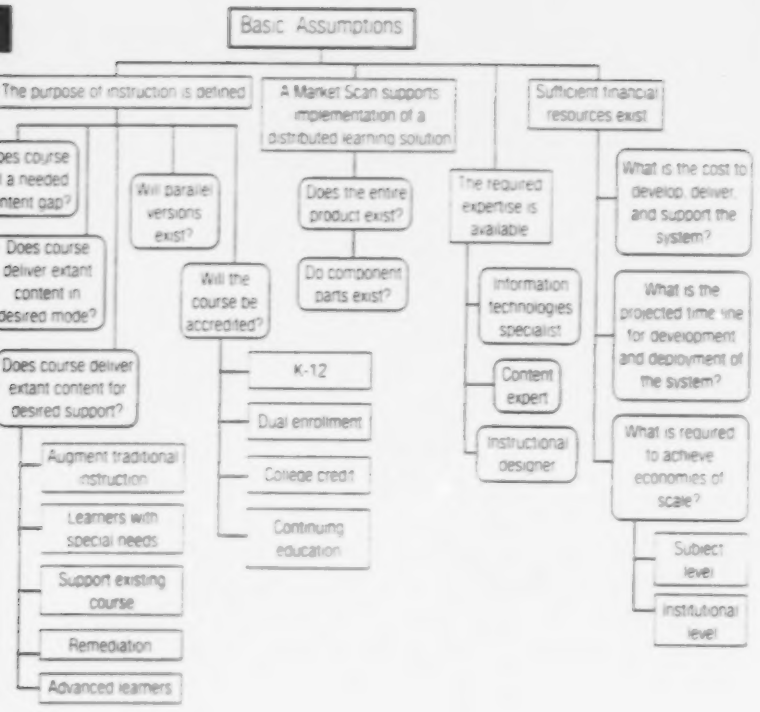
Is the purpose to supplement an existing course or create a whole new course? In either case, the entire course or parts of it may already be developed and available for use or purchase.

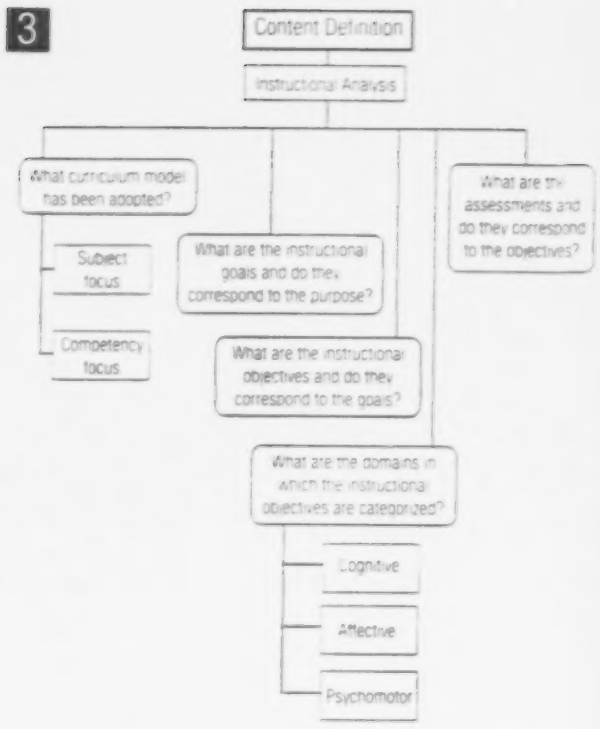
Do funding and/or time constraints affect decisions to purchase or develop components? If development is the choice, plan to rely on three key people: a content expert, an instructional designer, and an information technology specialist. Other people may be needed for design, layout, creation, or programming of media elements.

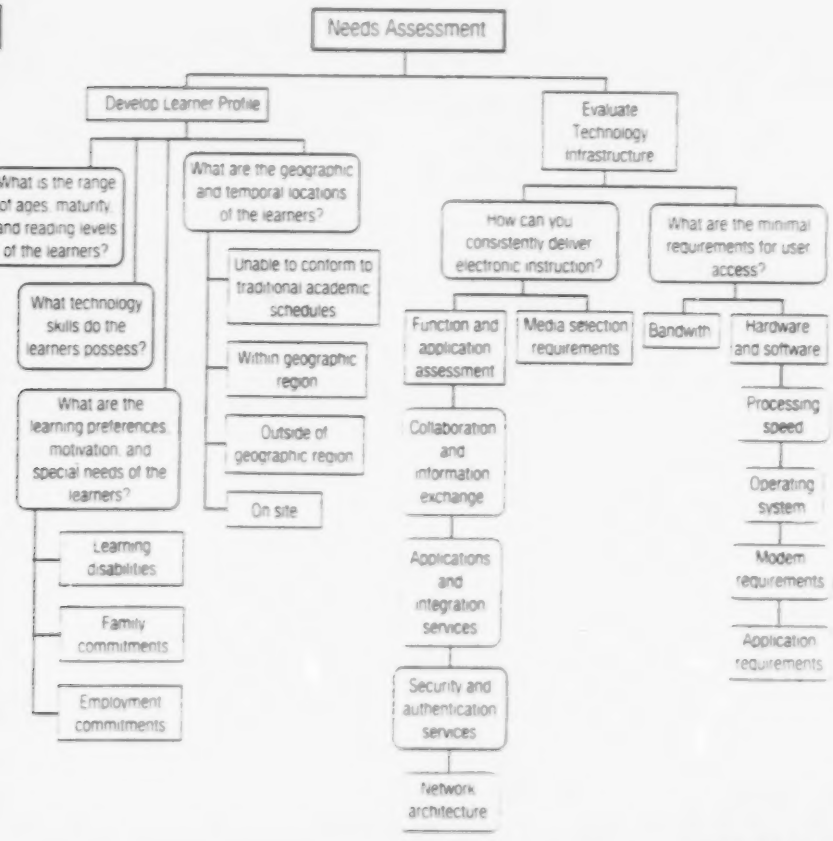
Needs Assessment

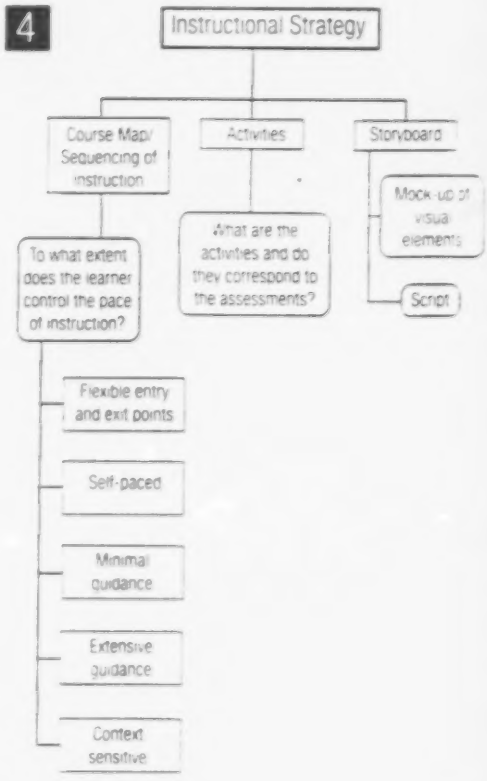
Know your learners and know their technology.

Develop instruction for a specific audience. Age, reading, and maturity levels all affect instructional design. Adult learners who want to improve their job skills


Basic Assumptions
The purpose of instruction is defined
A Market Scan supports implementation of a distributed learning solution
Sufficient financial resources exist
oes course a needed ntent gap?
Will parallel versions exist?
Does the entire product exist?
The required expertise is available
What is the cost to develop, deliver, and support the system?
Does course deliver extant content in desired mode?
Will the course be accredited?
Do component parts exist?
Information technologies specialist
What is the projected time line for development and deployment of the system?
Does course deliver extant content for desired support?
K-12
Content expert
Dual enrollment
What is required to achieve economies of scale?
Augment traditional instruction
College credit
Instructional designer
Learners with special needs
Continuing education
Subject level
Support existing course
Institutional level
Remediation
Advanced learners


3
Content Definition
Instructional Analysis
What curriculum model has been adopted?
What are the assessments and do they correspond to the objectives?
Subject focus
What are the instructional goals and do they correspond to the purpose?
Competency focus
What are the instructional objectives and do they correspond to the goals?
What are the domains in which the instructional objectives are categorized?
Cognitive
Affective
Psychomotor


Needs Assessment
Develop Learner Profile
Evaluate Technology Infrastructure
What is the range of ages, maturity, and reading levels of the learners?
What are the geographic and temporal locations of the learners?
How can you consistently deliver electronic instruction?
What are the minimal requirements for user access?
What technology skills do the learners possess?
Unable to conform to traditional academic schedules
Function and application assessment
Media selection requirements
Bandwith
Hardware and software
What are the learning preferences, motivation, and special needs of the learners?
Within geographic region
Collaboration and information exchange
Processing speed
Outside of geographic region
Operating system
Applications and integration services
Modem requirements
On site
Learning disabilities
Application requirements
Family commitments
Security and authentication services
Employment commitments
Network architecture



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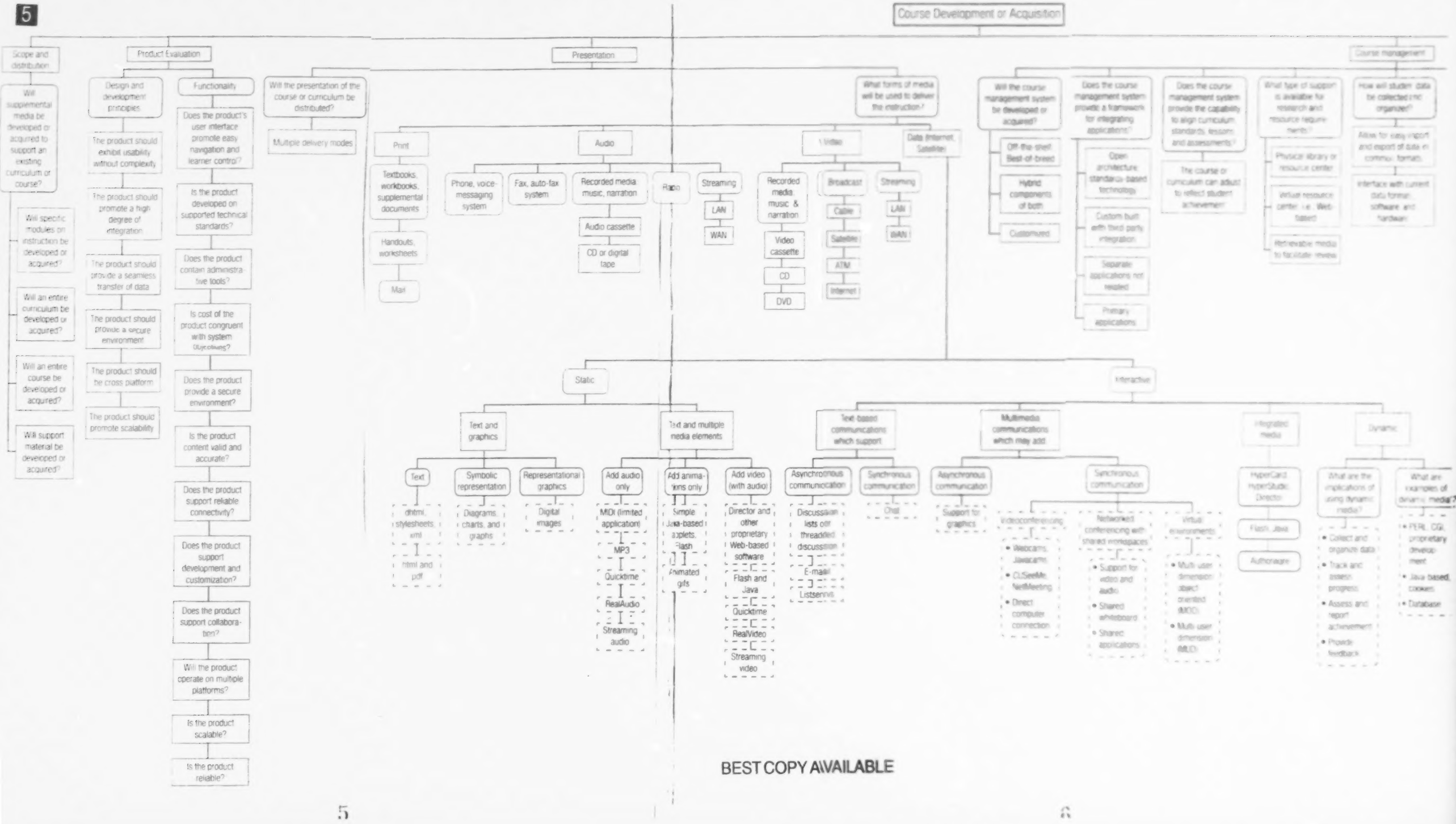

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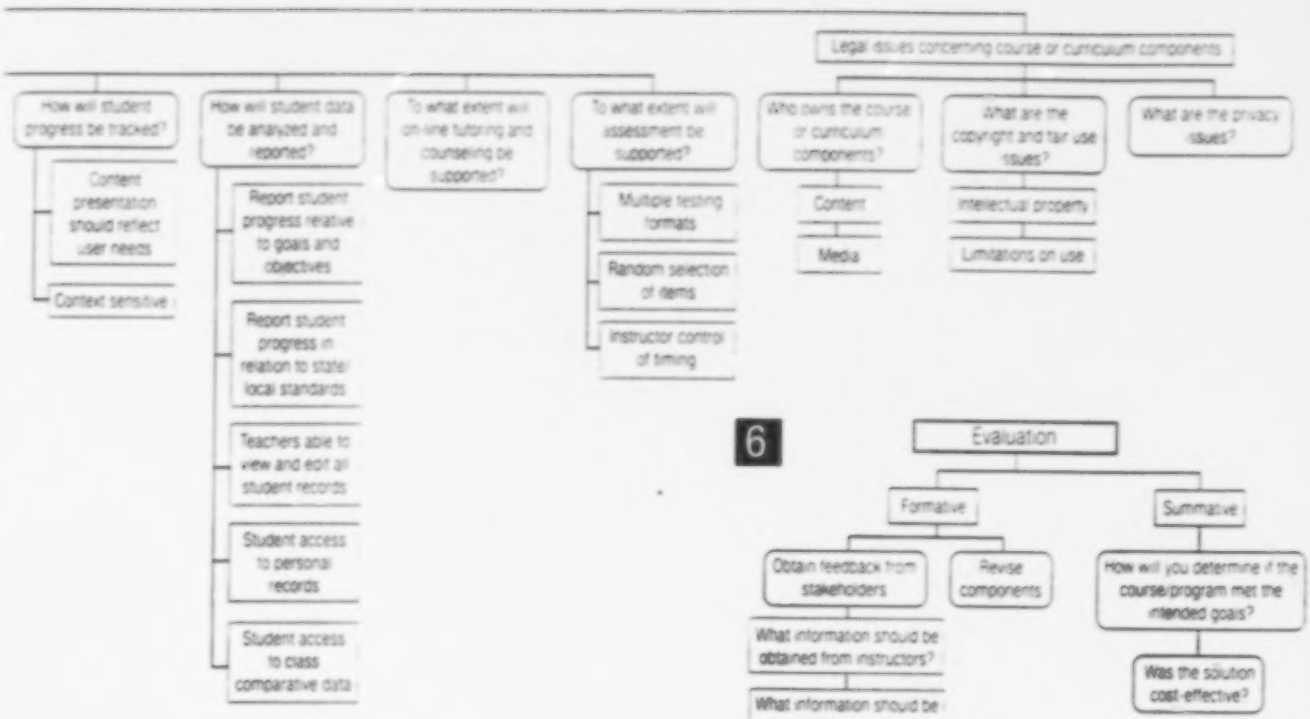
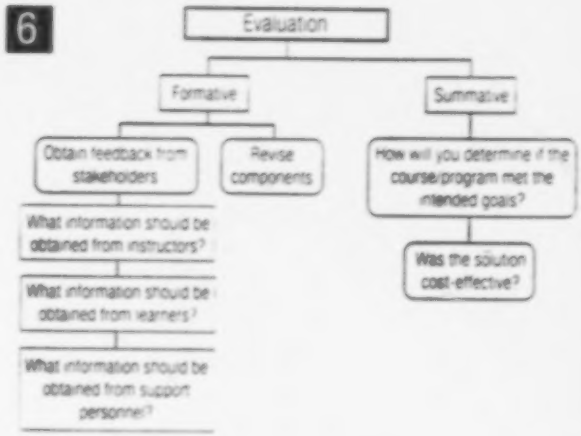
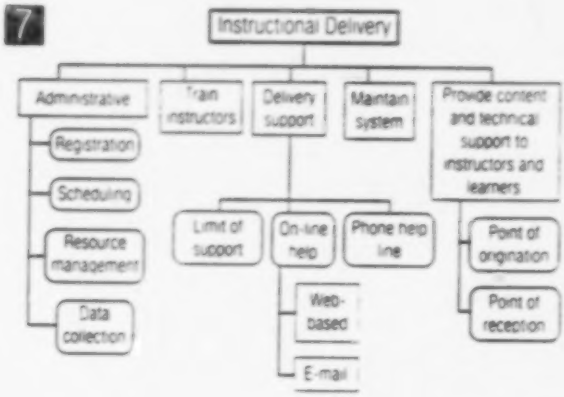

How will student progress be tracked?
Content presentation should reflect user needs
Context sensitive
How will student data be analyzed and reported?
Report student progress relative to goals and objectives
Report student progress in relation to state/ local standards
Teachers able to view and edit all student records
Student access to personal records
Student access to class comparative data
To what extent will on-line tutoring and counseling be supported?
To what extent will assessment be supported?
Multiple testing formats
Random selection of items
Instructor control of timing
Legal issues concerning course or curriculum components
Who owns the course or curriculum components?
Content
Media
What are the copyright and fair use issues?
Intellectual property
Limitations on use
What are the privacy issues?


6
Evaluation
Formative
Summative
Obtain feedback from stakeholders
Revise components
What information should be obtained from instructors?
What information should be obtained from learners?
What information should be obtained from support personnel?
How will you determine if the course/program met the intended goals?
Was the solution cost-effective?



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will have different motivation levels than younger learners who want to augment their traditional schooling with a distance-based course.

Instructional design will be limited by the infrastructure available to deliver it. Large graphic and media files are not suitable for downloading through a modem, but providing this supplemental material on a videocassette or CD may be very useful.

Content Definition

Perform an instructional analysis. In this important step, instructional goals and objectives are identified, then assessments that match these objectives are created. Both content and assessment should drive decisions about sequencing, presentation, and media selection. How will learners demonstrate proficiency? When learners must demonstrate skills or knowledge in a manner consistent with the requirements of the objectives. Web-based training that relies solely on text and simple graphics may not allow them to do so effectively.

Instructional Strategy

Outline the sequence of the content side by side with the activities and assessments. After deciding *what* to teach, the instructional strategy suggests *when* and *how* to teach it. Poorly designed instructional strategies can actually prevent students from receiving adequate exposure to required content. The time invested in carefully designing the instructional strategy and creating a storyboard will pay off in faster development and more effective instruction.

Course Development or Acquisition

Once content has been defined and strategies have been identified, decide whether to develop or purchase the course or any of its components. Whatever the decision, course materials should be evaluated before they are incorporated. Presentation formats will be guided by the learner profile and technology infrastructure identified in the Needs Assessment, as well as the definitions of content and instructional strategy.

Know the capacity of the technology infrastructure. This makes possible the selection of appropriate digital media to support both synchronous, and asynchronous communication. Placing too much emphasis on media development may divert attention from course management considerations. Developed or acquired media should integrate easily into the existing or proposed technology infrastructure while supporting the collection, analysis, and presentation of course data.

Understand the legal issues surrounding intellectual property. Rights to content and media developed for distance-based and distributed courses will differ from one scenario to another and ownership should be agreed before developing the course.

Evaluation

Formative evaluation demands that the material be revised, if necessary, before final preparation. Gather feedback from all stakeholders: the instructors, support personnel, and potential learners who match the target audience identified in the Needs Assessment.

While formative evaluation helps in developing instructional units, summative evaluation collected during and after actual instruction may provide further ideas for revision. It can also identify successful teaching and learning strategies for use in developing subsequent course offerings.

Instructional Delivery

Ensure that instructors and support personnel receive training in course delivery. The intensity and duration of training will depend on staff familiarity with the chosen format—on-line and teleconferencing formats require different teaching and learning strategies than do more traditional face-to-face presentations.

Remember that learners, too, may require both content and technical support.

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